

first transfer gate transistor and the second pull-down transistor having a first source/drain connected to a second source/drain of said second transfer gate transistor, both first and second pull-down transistors having a second source/drain connected to a power supply voltage node; and

wherein the first and second transfer gate transistors each have a first width and include a gate oxide layer having a first thickness, the first and second pull-down transistors each have a second width and include a gate oxide layer having a second thickness, and a product of the [first] second width and the first thickness is greater than or equal to a product of the [second] first width and the second thickness.

4. The SRAM memory cell of claim 1, wherein the first and second thicknesses are determined as follows:

$$[\text{RATIO} \leq \frac{Tox_{ig}}{Tox_{pd}} \frac{W_{pd} / L_{pd}}{W_{ig} / L_{ig}} \frac{V_{cc} - V_{t_{ig}}}{V_{cc} - V_{t_{pd}}}]$$

$$\text{RATIO} \leq \frac{Tox_{ig}}{Tox_{pd}} \times \frac{W_{pd} / L_{pd}}{W_{ig} / L_{ig}} \times \frac{V_{cc} - V_{t_{pd}}}{V_{cc} - V_{t_{ig}}}$$

where RATIO is the desired ratio of the transfer gate transistors and the pull down transistors, Tox_{ig} is the gate oxide thickness of the transfer gate transistor, Tox_{pd} is the gate oxide thickness of the pull-down transistor, W_{pd} is width of the pull-down transistor, L_{pd} is the length of the pull-down transistor, W_{ig} is the width of the transfer gate transistor, L_{ig} is the length of the transfer gate transistor, $V_{t_{ig}}$ is the threshold voltage of the transfer gate transistor, and $V_{t_{pd}}$ is the threshold voltage of the pull-down transistor.

6. A semiconductor circuit comprising:
 a first transistor having a first width and a first gate including a gate oxide layer having a first thickness; and
 a second transistor having a second width and a second gate including a gate oxide layer having a second thickness, wherein a product of the [second]

This Page Blank (uspto)

This Page Blank (uspto)